

# HG Energy, LLC

Harrison County, West Virginia

Hiram Lynch #55

Hiram Lynch #55

Wellbore #1

Design: Wellbore #1

## HG Energy EOW Report

22 December, 2014

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WV GEOLOGICAL SURVEY  
MORGANTOWN, WV



HG Energy EOW Report



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well Hiram Lynch #55
<b>Project:</b>	Harrison County, West Virginia	<b>TVD Reference:</b>	WELL @ 1184.0usft (Yost #2)
<b>Site:</b>	Hiram Lynch #55	<b>M/D Reference:</b>	WELL @ 1184.0usft (Yost #2)
<b>Well:</b>	Hiram Lynch #55	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM Compass

<b>Project:</b>	Harrison County, West Virginia	<b>System Datum:</b>	Mean Sea Level
<b>Map System:</b>	Universal Transverse Mercator		
<b>Geo Datum:</b>	NAD83 West Virginia - HARN		
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)		

<b>Site</b>	Hiram Lynch #55	<b>Northing:</b>	14,268,440.90 usft	<b>Latitude:</b>	39° 17' 22.200 N
<b>Site Position:</b>		<b>Eastng:</b>	1,785,883.29 usft	<b>Longitude:</b>	80° 29' 9.100 W
<b>From:</b>	Lat/Long	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.33 °
<b>Position Uncertainty:</b>	0.0 usft				

<b>Well</b>	Hiram Lynch #55	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,268,440.90 usft	<b>Latitude:</b>	39° 17' 22.200 N
		<b>+E/-W</b>	0.0 usft	<b>Eastng:</b>	1,785,883.29 usft	<b>Longitude:</b>	80° 29' 9.100 W
		<b>Position Uncertainty:</b>	0.0 usft	<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	1,176.0 usft

<b>Wellbore</b>	Wellbore #1	<b>Model Name</b>	IGRF2010	<b>Sample Date</b>	12/4/2014	<b>Declination (°)</b>	-8.70	<b>Dip Angle (°)</b>	66.73	<b>Field Strength (nT)</b>	52,202
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<b>Design</b>	Wellbore #1	<b>Audit Notes:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0		
<b>Vertical Section:</b>		<b>Depth From (TVD) (usft)</b>	0.0	<b>+N/-S (usft)</b>	0.0	<b>+E/-W (usft)</b>	0.0	<b>Direction (°)</b>	178.00

<b>Survey Program</b>	Date	12/22/2014	<b>Tool Name</b>	MWD default	<b>Description</b>	MWD - Standard
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Description</b>
525.0	2,990.0	MWD Survey (Wellbore #1)	MWD default	MWD - Standard		

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HG Energy EOW Report

Company: HG Energy, LLC  
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 Wellbore: Wellbore #1  
 Design: Wellbore #1

Local Co-ordinate Reference: Well Hiram Lynch #55  
 TVD Reference: WELL @ 1184.0usft (Yost #2)  
 MD Reference: WELL @ 1184.0usft (Yost #2)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: EDM Compass

Survey	MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	0.00
	525.0	0.00	0.00	525.0	0.0	0.0	0.0	0.00	0.0	0.00
First Survey @ 525' MD / 525' TVD										
	621.0	2.40	122.30	621.0	-1.1	1.7	1.1	2.50	2.0	122.30
	651.0	3.90	137.70	650.9	-2.2	2.9	2.3	5.70	3.6	126.58
	681.0	5.50	143.70	680.8	-4.1	4.5	4.2	5.57	6.0	132.47
	711.0	7.00	146.20	710.6	-6.8	6.3	7.0	5.08	9.3	136.90
	741.0	8.50	146.80	740.4	-10.1	8.6	10.4	5.01	13.3	139.82
	771.0	10.00	147.00	770.0	-14.2	11.2	14.6	5.00	18.1	141.71
	801.0	10.90	151.10	799.5	-18.8	14.0	19.3	3.89	23.5	143.43
	831.0	11.60	154.50	828.9	-24.0	16.6	24.6	3.21	29.2	145.30
	861.0	11.60	157.00	858.3	-29.5	19.1	30.2	1.68	35.2	147.09
	891.0	11.60	161.20	887.7	-35.2	21.3	35.9	2.81	41.1	148.83
	921.0	11.50	165.10	917.1	-40.9	23.0	41.7	2.62	46.9	150.65
	951.0	11.60	172.50	946.5	-46.8	24.2	47.6	4.95	52.7	152.68
	981.0	12.30	176.70	975.8	-53.0	24.8	53.8	3.72	58.5	154.96
	1,011.0	13.60	180.20	1,005.1	-59.7	24.9	60.5	5.06	64.7	157.34
	1,041.0	14.70	183.50	1,034.1	-67.0	24.7	67.8	4.55	71.4	159.78
	1,071.0	15.90	184.00	1,063.1	-74.9	24.2	75.7	4.02	78.7	162.13
	1,101.0	16.10	183.20	1,091.9	-83.2	23.6	84.0	0.99	86.5	164.13
	1,131.0	16.00	183.70	1,120.7	-91.5	23.1	92.2	0.57	94.3	165.80
	1,161.0	16.00	183.80	1,149.6	-99.7	22.6	100.4	0.09	102.2	167.23
	1,191.0	16.40	183.50	1,178.4	-108.1	22.1	108.8	1.36	110.3	168.46
	1,221.0	16.60	182.70	1,207.2	-116.6	21.6	117.3	1.01	118.6	169.50
	1,251.0	16.60	181.50	1,235.9	-125.1	21.3	125.8	1.14	126.9	170.34
	1,281.0	16.60	180.60	1,264.7	-133.7	21.1	134.4	0.86	135.4	171.02
	1,311.0	16.40	178.80	1,293.4	-142.2	21.2	142.9	1.83	143.8	171.53



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Wellbore: Wellbore #1  
Design: Wellbore #1

Local Co-ordinate Reference: Well Hiram Lynch #55  
TVD Reference: WELL @ 1184.0usft (Yost #2)  
MD Reference: WELL @ 1184.0usft (Yost #2)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: EDM Compass

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
1,341.0	16.10	176.90	1,322.2	-150.6	21.5	151.3	2.03	152.1	171.88
1,371.0	16.00	174.30	1,351.1	-158.9	22.1	159.6	2.42	160.4	172.07
1,401.0	16.00	173.40	1,379.9	-167.1	23.0	167.8	0.83	168.7	172.16
1,431.0	15.00	170.40	1,408.8	-175.0	24.1	175.8	4.27	176.7	172.15
1,461.0	13.40	167.90	1,437.9	-182.3	25.5	183.0	5.71	184.0	172.03
1,491.0	12.90	167.60	1,467.1	-188.9	27.0	189.8	1.68	190.8	171.88
1,521.0	12.40	172.60	1,496.4	-195.4	28.1	196.3	4.01	197.4	171.82
1,551.0	11.90	176.80	1,525.7	-201.7	28.7	202.6	3.38	203.7	171.90
1,581.0	11.60	177.00	1,555.1	-207.8	29.0	208.7	1.01	209.8	172.05
1,611.0	12.50	173.90	1,584.4	-214.0	29.5	214.9	3.69	216.0	172.15
1,641.0	13.60	173.10	1,613.6	-220.7	30.3	221.7	3.72	222.8	172.19
1,671.0	13.90	174.30	1,642.8	-227.8	31.1	228.8	1.38	229.9	172.23
1,701.0	13.20	176.10	1,671.9	-234.8	31.7	235.8	2.72	237.0	172.32
1,731.0	13.00	179.50	1,701.2	-241.6	31.9	242.6	2.65	243.7	172.47
1,761.0	12.80	182.40	1,730.4	-248.3	31.8	249.3	2.26	250.4	172.70
1,791.0	13.00	182.60	1,759.6	-255.0	31.5	256.0	0.68	257.0	172.95
1,821.0	13.10	181.50	1,788.9	-261.8	31.3	262.7	0.89	263.6	173.19
1,851.0	13.60	180.70	1,818.1	-268.7	31.1	269.6	1.78	270.5	173.39
1,881.0	14.00	180.30	1,847.2	-275.9	31.1	276.8	1.37	277.6	173.57
1,911.0	14.30	180.80	1,876.3	-283.2	31.0	284.1	1.08	284.9	173.75
1,941.0	14.50	180.10	1,905.3	-290.7	31.0	291.6	0.88	292.3	173.92
1,971.0	14.30	176.70	1,934.4	-298.1	31.2	299.0	2.90	299.7	174.03
2,001.0	14.10	171.10	1,963.5	-305.4	31.9	306.4	4.63	307.1	174.03
2,031.0	14.10	167.20	1,992.6	-312.6	33.3	313.6	3.17	314.4	173.92
2,061.0	14.10	168.10	2,021.7	-319.7	34.9	320.8	0.73	321.6	173.77
2,091.0	14.50	172.20	2,050.8	-327.0	36.1	328.1	3.63	329.0	173.69
2,121.0	15.00	175.80	2,079.8	-334.6	36.9	335.7	3.48	336.7	173.70

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North Reference: Grid  
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Database: EDM Compass

Survey	MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
	2,151.0	15.00	176.70	2,108.7	-342.4	37.4	343.5	0.78	344.4	173.76
	2,181.0	14.70	174.80	2,137.7	-350.0	38.0	351.2	1.91	352.1	173.80
	2,211.0	14.60	173.60	2,166.8	-357.6	38.8	358.7	1.07	359.7	173.81
	2,241.0	14.50	174.80	2,195.8	-365.1	39.5	366.2	1.06	367.2	173.82
	2,271.0	14.40	176.90	2,224.9	-372.6	40.1	373.7	1.78	374.7	173.86
	2,301.0	14.50	180.30	2,253.9	-380.0	40.3	381.2	2.85	382.2	173.95
	2,331.0	14.50	184.30	2,282.9	-387.5	40.0	388.7	3.34	389.6	174.11
	2,361.0	13.80	184.30	2,312.0	-394.8	39.4	396.0	2.33	396.8	174.30
	2,391.0	13.40	182.00	2,341.2	-401.9	39.0	403.0	2.24	403.8	174.45
	2,421.0	13.00	177.10	2,370.4	-408.7	39.1	409.8	3.96	410.6	174.54
	2,451.0	12.10	167.80	2,399.7	-415.2	39.9	416.3	7.36	417.1	174.51
	2,481.0	11.40	166.40	2,429.1	-421.1	41.3	422.3	2.52	423.2	174.40
	2,511.0	11.60	171.70	2,458.5	-427.0	42.4	428.2	3.58	429.1	174.33
	2,541.0	12.60	177.30	2,487.8	-433.3	43.0	434.5	5.14	435.4	174.33
	2,571.0	13.70	182.50	2,517.0	-440.1	43.0	441.3	5.38	442.2	174.42
	2,601.0	15.00	187.10	2,546.1	-447.5	42.4	448.7	5.76	449.5	174.59
	2,631.0	15.90	190.30	2,575.0	-455.4	41.1	456.5	4.13	457.2	174.84
	2,661.0	16.50	191.40	2,603.8	-463.6	39.6	464.7	2.25	465.3	175.12
	2,691.0	16.10	191.00	2,632.6	-471.8	37.9	472.9	1.38	473.4	175.40
	2,721.0	15.80	190.40	2,661.4	-479.9	36.4	480.9	1.14	481.3	175.66
	2,751.0	15.50	188.80	2,690.3	-487.9	35.0	488.9	1.75	489.2	175.89
	2,781.0	15.10	186.70	2,719.3	-495.8	34.0	496.7	2.28	496.9	176.08
	2,811.0	14.30	184.30	2,748.3	-503.3	33.2	504.2	3.35	504.4	176.22
	2,841.0	13.80	181.20	2,777.4	-510.6	32.9	511.5	3.01	511.7	176.31
	2,871.0	13.30	177.40	2,806.5	-517.6	33.0	518.5	3.40	518.7	176.35
	2,901.0	12.90	174.60	2,835.8	-524.4	33.4	525.3	2.50	525.5	176.35
	2,931.0	12.70	174.50	2,865.0	-531.0	34.1	531.9	0.67	532.1	176.33



HG Energy EOW Report

**Company:** HG Energy, LLC  
**Project:** Harrison County, West Virginia  
**Site:** Hiram Lynch #55  
**Well:** Hiram Lynch #55  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Hiram Lynch #55  
**TVD Reference:** WELL @ 1184.0usft (Yost #2)  
**MD Reference:** WELL @ 1184.0usft (Yost #2)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM Compass

Survey	MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Closure Distance (usft)	Closure Azimuth (°)
	2,990.0		12.70	2,922.6	-544.0	35.3	544.9	0.00	545.1	176.28
	TD @ 2990' MD / 2923' TVD									

Design Annotations	Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
			+N-S (usft)	+E/W (usft)	
	525.0	525.0	0.0	0.0	0.0 First Survey @ 525' MD / 525' TVD
	2,990.0	2,922.6	-544.0	35.3	TD @ 2990' MD / 2923' TVD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

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# **HG Energy, LLC**

**Harrison County, West Virginia**

**Hiram Lynch #55**

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**Wellbore #1**

**Design: Wellbore #1**

## **Survey Report - Geographic**

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MORGANTOWN, WV**



Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well Hiram Lynch #55
<b>Project:</b>	Harrison County, West Virginia	<b>TVD Reference:</b>	WELL @ 1184.0usft (Yost #2)
<b>Site:</b>	Hiram Lynch #55	<b>MD Reference:</b>	WELL @ 1184.0usft (Yost #2)
<b>Well:</b>	Hiram Lynch #55	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM Compass

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WV GEOLOGICAL SURVEY  
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<b>Project</b>	Harrison County, West Virginia		
<b>Map System:</b>	Universal Transverse Mercator	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD83 West Virginia - HARN		
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)		

<b>Site</b>	Hiram Lynch #55				
<b>Site Position:</b>		<b>Northing:</b>	14,268,440.90 usft	<b>Latitude:</b>	39° 17' 22.200 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,785,883.29 usft	<b>Longitude:</b>	80° 29' 9.100 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.33 °

<b>Well</b>	Hiram Lynch #55					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,268,440.90 usft	<b>Latitude:</b>	39° 17' 22.200 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,785,883.29 usft	<b>Longitude:</b>	80° 29' 9.100 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	1,176.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	12/4/2014	-8.70	66.73	52,202

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	178.00	

<b>Survey Program</b>	<b>Date</b>	12/22/2014			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
525.0	2,990.0	MWD Survey (Wellbore #1)	MWD default	MWD - Standard	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	14,268,440.90	1,785,883.29	39° 17' 22.200 N	80° 29' 9.100 W
525.0	0.00	0.00	525.0	0.0	0.0	14,268,440.90	1,785,883.29	39° 17' 22.200 N	80° 29' 9.100 W
<b>First Survey @ 525' MD / 525' TVD</b>									
621.0	2.40	122.30	621.0	-1.1	1.7	14,268,439.82	1,785,884.99	39° 17' 22.189 N	80° 29' 9.078 W
651.0	3.90	137.70	650.9	-2.2	2.9	14,268,438.73	1,785,886.21	39° 17' 22.178 N	80° 29' 9.063 W
681.0	5.50	143.70	680.8	-4.1	4.5	14,268,436.82	1,785,887.75	39° 17' 22.159 N	80° 29' 9.044 W
711.0	7.00	146.20	710.6	-6.8	6.3	14,268,434.14	1,785,889.62	39° 17' 22.133 N	80° 29' 9.020 W
741.0	8.50	146.80	740.4	-10.1	8.6	14,268,430.76	1,785,891.85	39° 17' 22.099 N	80° 29' 8.992 W
771.0	10.00	147.00	770.0	-14.2	11.2	14,268,426.72	1,785,894.48	39° 17' 22.059 N	80° 29' 8.959 W
801.0	10.90	151.10	799.5	-18.8	14.0	14,268,422.06	1,785,897.27	39° 17' 22.013 N	80° 29' 8.924 W
831.0	11.60	154.50	828.9	-24.0	16.6	14,268,416.85	1,785,899.94	39° 17' 21.961 N	80° 29' 8.890 W
861.0	11.60	157.00	858.3	-29.5	19.1	14,268,411.35	1,785,902.41	39° 17' 21.907 N	80° 29' 8.859 W



Survey Report - Geographic



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**Project:** Harrison County, West Virginia  
**Site:** Hiram Lynch #55  
**Well:** Hiram Lynch #55  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Hiram Lynch #55  
**TVD Reference:** WELL @ 1184.0usft (Yost #2)  
**MD Reference:** WELL @ 1184.0usft (Yost #2)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM Compass

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FEB 4 2015

WV GEOLOGICAL SURVEY  
 MORGANTOWN, WV

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
891.0	11.60	161.20	887.7	-35.2	21.3	14,268,405.72	1,785,904.57	39° 17' 21.851 N	80° 29' 8.832 W
921.0	11.50	165.10	917.1	-40.9	23.0	14,268,399.98	1,785,906.31	39° 17' 21.794 N	80° 29' 8.810 W
951.0	11.60	172.50	946.5	-46.8	24.2	14,268,394.09	1,785,907.47	39° 17' 21.736 N	80° 29' 8.796 W
981.0	12.30	176.70	975.8	-53.0	24.8	14,268,387.91	1,785,908.05	39° 17' 21.675 N	80° 29' 8.789 W
1,011.0	13.60	180.20	1,005.1	-59.7	24.9	14,268,381.20	1,785,908.22	39° 17' 21.608 N	80° 29' 8.787 W
1,041.0	14.70	183.50	1,034.1	-67.0	24.7	14,268,373.87	1,785,907.97	39° 17' 21.536 N	80° 29' 8.791 W
1,071.0	15.90	184.00	1,063.1	-74.9	24.2	14,268,365.97	1,785,907.45	39° 17' 21.458 N	80° 29' 8.798 W
1,101.0	16.10	183.20	1,091.9	-83.2	23.6	14,268,357.72	1,785,906.94	39° 17' 21.376 N	80° 29' 8.805 W
1,131.0	16.00	183.70	1,120.7	-91.5	23.1	14,268,349.44	1,785,906.44	39° 17' 21.294 N	80° 29' 8.812 W
1,161.0	16.00	183.80	1,149.6	-99.7	22.6	14,268,341.19	1,785,905.90	39° 17' 21.213 N	80° 29' 8.820 W
1,191.0	16.40	183.50	1,178.4	-108.1	22.1	14,268,332.83	1,785,905.36	39° 17' 21.130 N	80° 29' 8.827 W
1,221.0	16.60	182.70	1,207.2	-116.6	21.6	14,268,324.33	1,785,904.90	39° 17' 21.046 N	80° 29' 8.833 W
1,251.0	16.60	181.50	1,235.9	-125.1	21.3	14,268,315.76	1,785,904.59	39° 17' 20.962 N	80° 29' 8.838 W
1,281.0	16.60	180.60	1,264.7	-133.7	21.1	14,268,307.19	1,785,904.43	39° 17' 20.877 N	80° 29' 8.841 W
1,311.0	16.40	178.80	1,293.4	-142.2	21.2	14,268,298.67	1,785,904.48	39° 17' 20.793 N	80° 29' 8.841 W
1,341.0	16.10	176.90	1,322.2	-150.6	21.5	14,268,290.29	1,785,904.79	39° 17' 20.710 N	80° 29' 8.837 W
1,371.0	16.00	174.30	1,351.1	-158.9	22.1	14,268,282.02	1,785,905.43	39° 17' 20.628 N	80° 29' 8.830 W
1,401.0	16.00	173.40	1,379.9	-167.1	23.0	14,268,273.80	1,785,906.31	39° 17' 20.547 N	80° 29' 8.819 W
1,431.0	15.00	170.40	1,408.8	-175.0	24.1	14,268,265.86	1,785,907.43	39° 17' 20.468 N	80° 29' 8.805 W
1,461.0	13.40	167.90	1,437.9	-182.3	25.5	14,268,258.63	1,785,908.81	39° 17' 20.397 N	80° 29' 8.789 W
1,491.0	12.90	167.60	1,467.1	-188.9	27.0	14,268,251.96	1,785,910.26	39° 17' 20.331 N	80° 29' 8.771 W
1,521.0	12.40	172.60	1,496.4	-195.4	28.1	14,268,245.50	1,785,911.39	39° 17' 20.267 N	80° 29' 8.757 W
1,551.0	11.90	176.80	1,525.7	-201.7	28.7	14,268,239.22	1,785,911.98	39° 17' 20.204 N	80° 29' 8.750 W
1,581.0	11.60	177.00	1,555.1	-207.8	29.0	14,268,233.12	1,785,912.31	39° 17' 20.144 N	80° 29' 8.746 W
1,611.0	12.50	173.90	1,584.4	-214.0	29.5	14,268,226.88	1,785,912.81	39° 17' 20.082 N	80° 29' 8.740 W
1,641.0	13.60	173.10	1,613.6	-220.7	30.3	14,268,220.15	1,785,913.58	39° 17' 20.016 N	80° 29' 8.731 W
1,671.0	13.90	174.30	1,642.8	-227.8	31.1	14,268,213.06	1,785,914.36	39° 17' 19.946 N	80° 29' 8.721 W
1,701.0	13.20	176.10	1,671.9	-234.8	31.7	14,268,206.06	1,785,914.95	39° 17' 19.876 N	80° 29' 8.714 W
1,731.0	13.00	179.50	1,701.2	-241.6	31.9	14,268,199.26	1,785,915.22	39° 17' 19.809 N	80° 29' 8.711 W
1,761.0	12.80	182.40	1,730.4	-248.3	31.8	14,268,192.57	1,785,915.11	39° 17' 19.743 N	80° 29' 8.713 W
1,791.0	13.00	182.60	1,759.6	-255.0	31.5	14,268,185.88	1,785,914.81	39° 17' 19.677 N	80° 29' 8.717 W
1,821.0	13.10	181.50	1,788.9	-261.8	31.3	14,268,179.11	1,785,914.57	39° 17' 19.610 N	80° 29' 8.721 W
1,851.0	13.60	180.70	1,818.1	-268.7	31.1	14,268,172.18	1,785,914.44	39° 17' 19.541 N	80° 29' 8.723 W
1,881.0	14.00	180.30	1,847.2	-275.9	31.1	14,268,165.03	1,785,914.38	39° 17' 19.471 N	80° 29' 8.724 W
1,911.0	14.30	180.80	1,876.3	-283.2	31.0	14,268,157.69	1,785,914.31	39° 17' 19.398 N	80° 29' 8.726 W
1,941.0	14.50	180.10	1,905.3	-290.7	31.0	14,268,150.23	1,785,914.25	39° 17' 19.324 N	80° 29' 8.727 W
1,971.0	14.30	176.70	1,934.4	-298.1	31.2	14,268,142.78	1,785,914.46	39° 17' 19.251 N	80° 29' 8.725 W
2,001.0	14.10	171.10	1,963.5	-305.4	31.9	14,268,135.47	1,785,915.23	39° 17' 19.178 N	80° 29' 8.716 W
2,031.0	14.10	167.20	1,992.6	-312.6	33.3	14,268,128.30	1,785,916.61	39° 17' 19.107 N	80° 29' 8.699 W
2,061.0	14.10	168.10	2,021.7	-319.7	34.9	14,268,121.16	1,785,918.17	39° 17' 19.037 N	80° 29' 8.679 W
2,091.0	14.50	172.20	2,050.8	-327.0	36.1	14,268,113.86	1,785,919.44	39° 17' 18.965 N	80° 29' 8.664 W
2,121.0	15.00	175.80	2,079.8	-334.6	36.9	14,268,106.27	1,785,920.23	39° 17' 18.889 N	80° 29' 8.654 W
2,151.0	15.00	176.70	2,108.7	-342.4	37.4	14,268,098.52	1,785,920.74	39° 17' 18.813 N	80° 29' 8.648 W
2,181.0	14.70	174.80	2,137.7	-350.0	38.0	14,268,090.85	1,785,921.31	39° 17' 18.737 N	80° 29' 8.642 W
2,211.0	14.60	173.60	2,166.8	-357.6	38.8	14,268,083.31	1,785,922.07	39° 17' 18.662 N	80° 29' 8.632 W
2,241.0	14.50	174.80	2,195.8	-365.1	39.5	14,268,075.81	1,785,922.83	39° 17' 18.588 N	80° 29' 8.623 W
2,271.0	14.40	176.90	2,224.9	-372.6	40.1	14,268,068.34	1,785,923.38	39° 17' 18.514 N	80° 29' 8.617 W
2,301.0	14.50	180.30	2,253.9	-380.0	40.3	14,268,060.86	1,785,923.56	39° 17' 18.440 N	80° 29' 8.615 W
2,331.0	14.50	184.30	2,282.9	-387.5	40.0	14,268,053.36	1,785,923.26	39° 17' 18.366 N	80° 29' 8.620 W
2,361.0	13.80	184.30	2,312.0	-394.8	39.4	14,268,046.05	1,785,922.71	39° 17' 18.294 N	80° 29' 8.627 W
2,391.0	13.40	182.00	2,341.2	-401.9	39.0	14,268,039.01	1,785,922.32	39° 17' 18.224 N	80° 29' 8.633 W
2,421.0	13.00	177.10	2,370.4	-408.7	39.1	14,268,032.16	1,785,922.37	39° 17' 18.157 N	80° 29' 8.632 W
2,451.0	12.10	167.80	2,399.7	-415.2	39.9	14,268,025.72	1,785,923.20	39° 17' 18.093 N	80° 29' 8.622 W
2,481.0	11.40	166.40	2,429.1	-421.1	41.3	14,268,019.76	1,785,924.56	39° 17' 18.034 N	80° 29' 8.605 W
2,511.0	11.60	171.70	2,458.5	-427.0	42.4	14,268,013.90	1,785,925.70	39° 17' 17.976 N	80° 29' 8.591 W

Survey Report - Geographic



<b>Company:</b>	HG Energy, LLC	<b>Local Co-ordinate Reference:</b>	Well Hiram Lynch #55
<b>Project:</b>	Harrison County, West Virginia	<b>TVD Reference:</b>	WELL @ 1184.0usft (Yost #2)
<b>Site:</b>	Hiram Lynch #55	<b>MD Reference:</b>	WELL @ 1184.0usft (Yost #2)
<b>Well:</b>	Hiram Lynch #55	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM Compass

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
2,541.0	12.60	177.30	2,487.8	-433.3	43.0	14,268,007.64	1,785,926.29	39° 17' 17.914 N	80° 29' 8.584 W	
2,571.0	13.70	182.50	2,517.0	-440.1	43.0	14,268,000.82	1,785,926.29	39° 17' 17.847 N	80° 29' 8.585 W	
2,601.0	15.00	187.10	2,546.1	-447.5	42.4	14,267,993.42	1,785,925.65	39° 17' 17.773 N	80° 29' 8.593 W	
2,631.0	15.90	190.30	2,575.0	-455.4	41.1	14,267,985.53	1,785,924.44	39° 17' 17.695 N	80° 29' 8.609 W	
2,661.0	16.50	191.40	2,603.8	-463.6	39.6	14,267,977.31	1,785,922.86	39° 17' 17.614 N	80° 29' 8.630 W	
2,691.0	16.10	191.00	2,632.6	-471.8	37.9	14,267,969.05	1,785,921.22	39° 17' 17.533 N	80° 29' 8.652 W	
2,721.0	15.80	190.40	2,661.4	-479.9	36.4	14,267,960.95	1,785,919.69	39° 17' 17.453 N	80° 29' 8.672 W	
2,751.0	15.50	188.80	2,690.3	-487.9	35.0	14,267,952.97	1,785,918.34	39° 17' 17.374 N	80° 29' 8.689 W	
2,781.0	15.10	186.70	2,719.3	-495.8	34.0	14,267,945.13	1,785,917.27	39° 17' 17.296 N	80° 29' 8.704 W	
2,811.0	14.30	184.30	2,748.3	-503.3	33.2	14,267,937.55	1,785,916.54	39° 17' 17.221 N	80° 29' 8.713 W	
2,841.0	13.80	181.20	2,777.4	-510.6	32.9	14,267,930.28	1,785,916.19	39° 17' 17.150 N	80° 29' 8.718 W	
2,871.0	13.30	177.40	2,806.5	-517.6	33.0	14,267,923.25	1,785,916.27	39° 17' 17.080 N	80° 29' 8.718 W	
2,901.0	12.90	174.60	2,835.8	-524.4	33.4	14,267,916.47	1,785,916.74	39° 17' 17.013 N	80° 29' 8.712 W	
2,931.0	12.70	174.50	2,865.0	-531.0	34.1	14,267,909.86	1,785,917.37	39° 17' 16.948 N	80° 29' 8.705 W	
2,990.0	12.70	174.50	2,922.6	-544.0	35.3	14,267,896.94	1,785,918.61	39° 17' 16.820 N	80° 29' 8.690 W	

TD @ 2990' MD / 2923' TVD

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
525.0	525.0	0.0	0.0	First Survey @ 525' MD / 525' TVD	
2,990.0	2,922.6	-544.0	35.3	TD @ 2990' MD / 2923' TVD	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

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WV GEOLOGICAL SURVEY  
MORGANTOWN, WV



Company Name: HG Energy, LLC  
 Hiram Lynch #55  
 Harrison County, West Virginia  
 Rig: Yost #2  
 Created By: Jerry Arsenault  
 Date: 12/22/2014

Hiram Lynch #55  
 Harrison County, West Virginia  
 Q141327 & AM-141273  
 Design #1

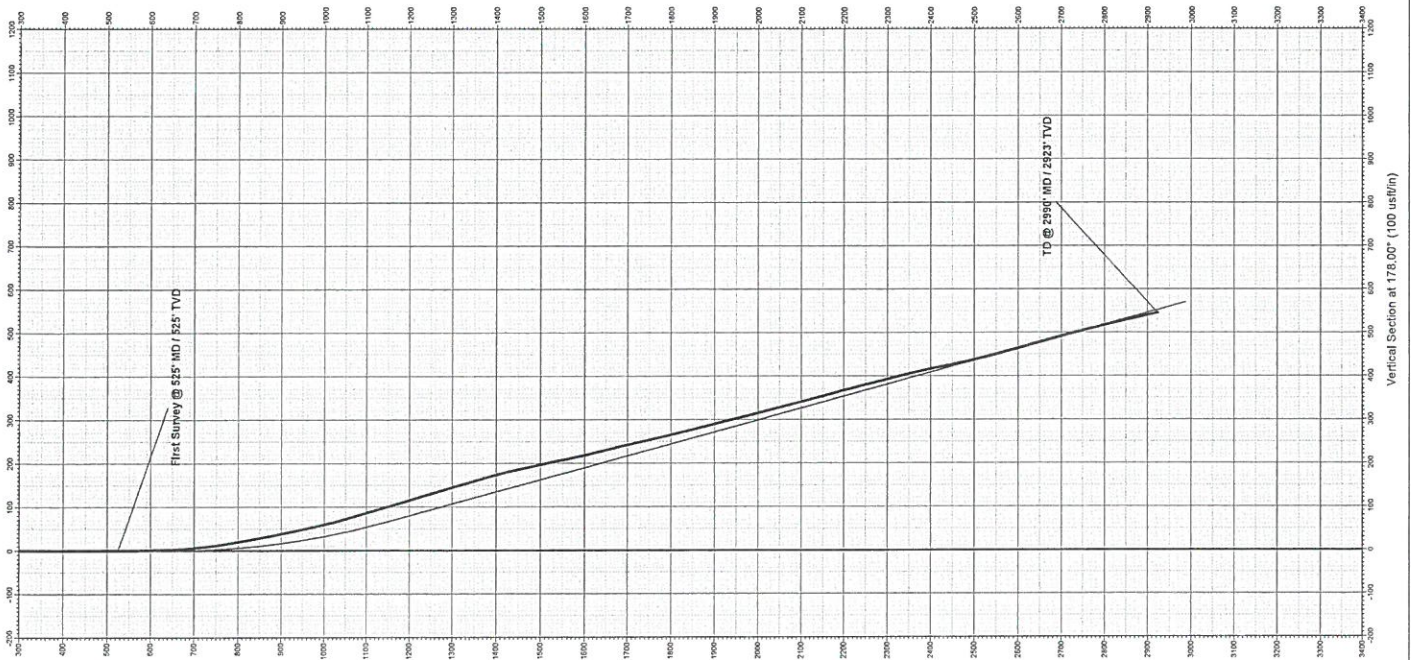
DESIGN TARGET DETAILS

Name	TVD	+N/S	+E/W	Northing	Eastng	Latitude	Longitude
Target Hiram Lynch #55 -Plan that target center	2387.0	-54.7	15.0	1428728.21	1785981.27	39° 17' 17.10" N	80° 29' 8.99" W

# HG Energy

ANNOTATIONS

MD	Inc	Azi	TVD	+N/S	+E/W	V-Sect	Departure	Annotation
2388.0	12.70	174.59	2322.6	-54.0	35.3	54.0	95.31	TD @ 2388' MD / 2323' TVD



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WV GEOLOGICAL SURVEY  
 MORGANTOWN, WV

PROJECT DETAILS: Harrison County, West Virginia

Geodetic System: Universal Transverse Mercator  
 Datum: North American 1983  
 Ellipsoid: GRS 1980  
 Zone: 17N (E/W to B/W)  
 System: UTM  
 (From 500K UTM)

WELL DETAILS: Hiram Lynch #55

Ground Level: 1176.0  
 Northing: 1428728.21  
 Easting: 1785981.27  
 Longitude: 80° 29' 8.99" W

Azimuths to Grid North  
 Correction: -9.02°

Magnetic Field  
 Strength: 52202.2snT  
 Dip Angle: 66.73°  
 Date: 12/4/2014  
 Model: IGRF2010